

WHAT IS CLAIMED IS:

1. A highly weather resistant colored steel plate, comprising:

5 a steel plate 1 as a substrate;

a zinc- or zinc alloy-plated layer 2 formed on the steel plate 1;

a layer 3 formed on the zinc- or zinc alloy-plated layer 2 and pretreated with chromate or non-chromate; and

10 a highly weather resistant film 10 formed on the chromate or non-chromate layer 3,

wherein the highly weather resistant film 10 includes a polyester-based primer 4 coated onto the chromate or non-chromate layer 3 and a polyester top coat 5 coated onto the polyester-based primer 4, the top coat 5 being produced from a mixture of a main resin obtained by reacting an oil-free polyester-modified resin and a polyisocyanate compound, a melamine resin as a crosslinking agent, and other additives.

20 2. The highly weather resistant colored steel plate according to claim 1, wherein the oil-free polyester-modified resin polyester resin has a number average molecular weight of 1,000~9,000, a glass transition temperature (Tg) of -5~45°C, and an OH number of 15~150.

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3. The highly weather resistant colored steel plate according to claim 1, wherein the polyisocyanate compound is present in an amount of 5-30 parts by weight, based on the solid of the main resin.

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4. The highly weather resistant colored steel plate according to claim 1, wherein the melamine resin is present in an amount of 4~10 parts by weight, based on the total weight of the top coat 5.

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5. The highly weather resistant colored steel plate according to any one of claims 1 to 4, wherein the pretreated layer 3 has a density of 20~80mg/m², the polyester-based primer 4 has a dry film thickness (D.F.T) of 4~7μm, and the polyester top coat 5 has a dry film thickness (D.F.T) of 15~22μm.

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6. A method for manufacturing a highly weather resistant colored steel plate, comprising the steps of:

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coating chromate or non-chromate onto a zinc- or zinc alloy-plated layer 2 at a line speed of 60~120mpm, and drying the chromate or non-chromate layer at 60~140°C to form a pretreated layer 3; and

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forming a polyester-based primer 4, roll coating a polyester top coat 5 including a main resin obtained by

reacting an oil-free polyester-modified resin and a polyisocyanate compound, a melamine resin as a crosslinking agent, and other additives, onto the polyester-based primer 4, and heating and drying the roll coated structure at a PMT of
5 190-240°C to form a highly weather resistant film 10.